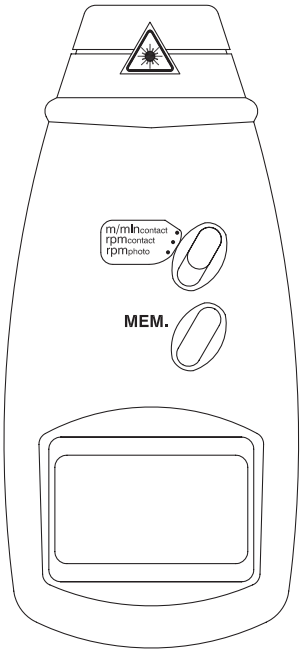
User Manual

DIGI-SENSE™

Digital Contact/Photo Tachometer

with NIST-Traceable Calibration

Model 20250-26



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THE STANDARD IN PRECISION MEASUREMENT

Introduction

The Digi-Sense Digital Contact/Photo Tachometer (Model 20250-26) is designed for quick and accurate rpm and surface speed measurements. This digital tachometer is an essential instrument in preventive maintenance programs for ensuring the optimal performance of your equipment and will reduce costly downtime and repairs by catching potential equipment problems early. Easily configure the unit for contact or noncontact measurements depending on your application requirements. Tachometer features autoranging with 0.05% accuracy; Max, Min, and last values; built-in memory recall of last twenty average measurements; and a rugged design that is ideal for industrial environments. The instrument is fully tested and calibrated to NIST-traceable standards. Careful use of this meter will provide years of reliable service.

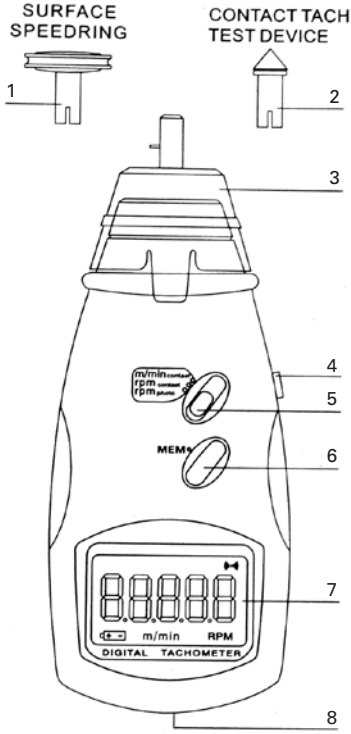
Unpacking

Check individual parts against the list of items below. If anything is missing or damaged, please contact your instrument supplier immediately.

1. Tachometer
2. Surface speed wheel
3. Large male rpm rubber cone
4. Small male rpm rubber cone
5. Female rpm rubber cone
6. rpm contact adapter
7. Reflective tape (23⅝", 60 cm)
8. Four set screws
9. Carrying case
10. Four AA batteries
11. User manual
12. NIST-traceable calibration report with data

Meter Description

1. Surface speed wheel
2. rpm contact adapter
3. Contact converter
4. **Measure** button
5. **Mode/Function** switch (m/min contact, rpm contact, rpm photo)
6. **MEM** button (memory/recall)
7. Backlit LCD
8. Battery cover



Display Descriptions

General display function descriptions:

- "m/min" icon indicates meters per minute
- "rpm" icon indicates revolutions per minute
- " " icon indicates low-battery status

When holding and selecting the **MEM** button:

- "UP" icon indicates the maximum measurement value
- "dn" icon indicates the minimum measurement value
- "LA" icon indicates the last measurement value
- "An" icon indicates memory recall of up to the last twenty average measurement values taken

Key Features

- Microprocessor (CPU) design combines contact tachometer and photo tachometer capabilities in one instrument
- Precision accuracy of ±0.05% ±1 digit
- User-configurable contact or photo capability
- Max, Min, last value, and recall of last twenty average measurements
- Photo tachometer measures from a distance up to 19 11/16" (50 cm) away from target
- Comfortable, ergonomic design
- Durable, lightweight ABS plastic housing
- Large easy-to-read backlit display
- Low-battery indicator

Setup and Operation

Procedure for Contact Measurements

Rotational rpm speed measurement

1. Select the "rpm contact" option on the **Mode/Function** switch located on the front of the tachometer.
2. Install the contact converter to the top of the tachometer.
3. Install the rpm contact adapter on the shaft.
4. Place desired male or female rpm rubber cone on the rpm contact adapter.
5. Press the **Measure** button and lightly place the rpm contact adapter against the center hole of the rotating shaft. Be certain to keep alignment straight. Release the **Measure** button when the display reading stabilizes.

Surface speed measurement

1. Slide the **Mode/Function** switch to "m/min contact" option.
2. Install the surface speed wheel to the shaft on the contact converter.
3. Press the **Measure** button and place the surface speed wheel on the desired surface.
4. Release the **Measure** button when the display reading stabilizes.

Procedure for Noncontact (Photo) Measurements

1. Apply a piece of reflective tape on the object being measured.

   a. **Note:** Cut and peel reflective tape into approximately 0.5" (12 mm) squares and apply one square to each rotational shaft. The nonreflective area must always be greater than the reflective area. If the shaft is normally reflective, it must be covered with black tape or black paint before attaching reflective tape. Also make sure the shaft surface is clean and smooth before applying reflective tape.

   b. For very low rpm measurements, increase the use of reflective tape marks and space them at equal distances apart. Then divide the reading shown by the number of reflective tape marks to get the actual rpm measurement.

2. Select the "rpm photo" option on the **Mode/Function** switch located on the front of the tachometer.

3. Press the side **Measure** button and align the visible light beam with the applied reflective tape target. Verify that the display indication symbol lights up when the reflective tape target aligns with the beam.

4. Begin taking measurements

Displaying Maximum Measurement Value

After taking measurements, press and hold the **MEM** button once. The "UP" icon will appear on the left side of display and the maximum measurement value will be shown on the right side of display.

Displaying Minimum Measurement Value

After taking measurements, press the **MEM** button two times and hold on the second press. The "dn" icon will appear on the left side of display and the minimum measurement value will be shown on the right side of display.

Displaying Last Measurement Value

After taking measurements, press the **MEM** button three times and hold on the third press. The "LA" icon will appear on the left side of display and the last measurement value will be shown on the right side of display.

Recalling the Stored Average Measurement Values (up to the last 20 readings)

After taking measurements, press the **MEM** button four times and hold on the fourth press. The "An" icon will appear on the left side of display and the number of average stored measurements will be shown on the right side of display. Every sequential press of the **MEM** button will then display the individual stored number along with the associated average value.

Note: After approximately 5 minutes of nonuse, all measurement values stored in memory (maximum, minimum, last, and stored) are erased from the tachometer.

Specifications

Mode/ Function	Contact	Photo
Range	0.5 to 19,999 rpm	2.5 to 99,999 rpm
Resolution	0.1 rpm from 0.5 to 999.9 rpm; 1 rpm over 1000 rpm	0.1 rpm from 2.5 to 999.9 rpm; 1 rpm over 1000 rpm
Accuracy	±(0.05% + 1 digit)	
Surface speed	0.2 to 6561 ft/min; 0.05 to 1999.9 m/min	
Sampling time	0.8 second (over 60 rpm)	
Range select	Auto-range	
Time base	Quartz crystal	
Detecting distance	—	50 to 500 mm
Display	Backlit 5-digit LCD	
Weight	8.6 oz (244 g)	
Dimensions	8¼" x 2⅞" x 1½" (21 x 7.4 x 3.7 cm)	
Power	Four AA batteries	

Safety

- Use extreme caution when laser beam is turned on.
- Do not let the laser beam enter your eye, another person's eye or the eye of an animal.
- Be careful not to let the laser beam on a reflective surface strike your eye.
- Do not allow the laser light beam to impinge on any gas which can explode.

Maintenance, Recalibration, and Repair

Cleaning and Storage

- Meter should be cleaned with a damp cloth and mild detergent when necessary. Do not use solvents or abrasives.
- Store the meter in an area with moderate temperature and humidity.

Battery Replacement

When the battery power falls low, the **low-battery** icon will appear on the screen. Replace the four AA batteries in the rear battery compartment by removing the battery door. Ensure that the cover is securely refastened when finished. Remove batteries if unit is not being used for extended time periods.

Note: Install batteries aligning the positive and negative ends with the "+" and "-" symbols located on the battery floor compartment. Installing the batteries incorrectly may cause permanent circuit damage to the tachometer.

It is recommended that Digi-Sense products are calibrated annually to ensure proper function and accurate measurements; however, your quality system or regulatory body may require more frequent calibrations. To schedule your recalibration, please contact InnoCal, an ISO 17025 calibration laboratory accredited by A2LA.

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